LEARNING MADE EASY

NICE Special Edition

Robotic Process Automation

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Define robotic process automation

Build best practice automations

Discover ten realities about RPA

Compliments of NICE®

NICE RPA team
with Steve Kaelble

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by NICE RPA team with Steve Kaelble

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Robotic Process Automation For Dummies®, NICE Special Edition

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Introduction

Your organization has plugged itself into the digital landscape in all kinds of ways, and it seems like every day there's a new way to build on that trend. But you might be surprised to learn just how much of your business is still done the old-fashioned way: manually. Ironically, if your business is like most, your people are having all kinds of manual interactions with the digital environment.

From your customer-service operation to human resources, finance, legal, and procurement, people are manually looking up information in databases, typing in updates, flipping from one application to another, cutting and pasting, sending follow-up emails, making rather mundane decisions — over and over and over again. In many cases, customers are waiting on the other end of the phone while this manual work is going on. And with every manual process, there's a chance for human error. Yeah, it beats working on paper, but is this really as good as it gets? Definitely not.

These kinds of business process challenges are just what robotic process automation (RPA) was made for. Simply put, RPA is the use of computer software "robots" to handle repetitive, rule-based digital tasks, interacting with applications and information sources the same way humans do now. At its most basic level, it's pretty impressive technology, and it gets more powerful all the time. The newest advances have robots not only handling more complex functions, but also they're learning to make some of the decisions.

About This Book

Robotic Process Automation For Dummies, NICE Special Edition, is your handbook for venturing into the world of RPA. It's packed with background on what RPA can do for you and your organization, how it works, and the different kinds of robotic solutions for your automation needs. It provides insights into how you can determine where the best opportunities for automation are and how to approach them. It offers guidance on getting the ball rolling, inviting the right people to the table, getting buy-in from

the pertinent players, and establishing a center of excellence to help RPA really take root and thrive.

The information in this book comes from experts in RPA from NICE. NICE has both the technology and the expertise to help your organization take its first steps down the path toward process automation, and then build on your early successes with increasingly sophisticated capabilities. This book isn't an instruction manual because your situation has its own intricacies that will determine the best approach. But we hope it will equip you with the information you need to ask the right questions and open the right doors to capabilities you may never have dreamed are possible.

Foolish Assumptions

As we decided what to include in this book, we made some basic assumptions about you, the reader:

- You're a business analyst, IT specialist, or automation lead within your organization, and part of your job is to make processes work more smoothly and efficiently.
- Your organization includes a significant back office operation, or perhaps a contact center, where there are processes ripe for automation.
- You'd appreciate some basic information on how to make process automation happen, and you don't have all the time in the world to dive into a thousand-page text.

Icons Used in This Book

The whole point of this book is to make it easy to find the information that's most pertinent to you. With that in mind, we've included icons in the margins of certain key paragraphs. Here's what those icons mean.

REMEMBER

We hope that every single paragraph catches your eye and captures your attention. But if you're in a hurry, please at least have a look at the paragraphs marked by this icon. This information gives you key things to remember about RPA.

TIP

Our aim is to provide you with actionable insights for making RPA happen in your world. This paragraph includes some specific ideas.

TECHNICAL STUFF

RPA is all about making your world simpler, without getting lost in the weeds. But if you're someone who likes to delve a little deeper into the techie details, here is a paragraph for you.

WARNING

You're trying to make things run more smoothly, right? So these cautionary notes give you pitfalls to avoid.

Beyond the Book

The aim of this book is to share some insights about RPA and how it can give your organization a competitive edge. But despite all the words on these pages, there's more you may want to know. Here are some resources that might offer you some additional insights:

- Learn more about how you can free employees from mundane tasks and deliver stellar customer service from the robotic automation experts at NICE. For resources and video explanations, please visit `www.nice.com/websites/rpa`.
- Delve into more detail about how RPA is transforming business processes with a white paper created by NICE and the Institute for Robotic Process Automation. To download, please visit `www.nice.com/websites/rpa/white_paper.html`.
- For a take on RPA from Deloitte and *The Wall Street Journal*, please visit `https://goo.gl/sHG1wh`.

IN THIS CHAPTER

- Meeting the robot
- Understanding automation potential
- Finding the RPA answers
- Realizing the value in RPA
- Controlling the robots

Chapter 1
What Is Robotic Process Automation?

Every new tool, it seems, solves one set of problems and creates a new area of concern. Who wants to go back to the days of paper, manila folders, and steel filing cabinets? Digitization of data has been an explosive force for productivity and advancement, but it has also created its own new roster of mundane work roles.

This chapter explores the benefits offered by robotic and desktop process automation — giving more and more of the mundane work over to machines that can handle it well and without complaint. It introduces the concept, explores where it works best, and outlines some of the value it can bring to your organization.

Meet Your New Robot

Through the years, your customer-service operation has become more and more powerful, with advanced functionality provided by increasingly digital tools. That's clearly a good thing, but it also means that your customer-service team is spending a lot of time

moving from one application to another, filling in the same information in multiple places, reentering data, or copying and pasting.

Studies have shown a typical customer contact might require your representative to interact with half a dozen different applications. Your agent can get a lot of important tasks accomplished with the help of those applications, but it's anything but simple.

At the very least, all those manual processes are a recipe for inefficiency. Dealing with them is a source of boredom and dissatisfaction for employees. And it's a situation that's ripe for errors. So, why send a human to do a robot's job? Why waste a good human mind on mind-numbing work that requires little or no analysis and no subjective judgment?

REMEMBER

Robotic process automation (RPA) uses the latest software technologies to automatically handle computer tasks that are highly structured, routine, and repetitive. For tasks that are largely driven by rules, schedules, or events, a robot can take the wheel and get the job done.

Typical back office employees, in fact, spend up to 80 percent of their day on such mundane activities. These workers are filling in forms, making repetitive calculations, and processing orders — all things that are vital for customer satisfaction but tedious for employees.

RPA hands such processes off to a robotic workforce. This workforce is precise and accurate and immune to boredom. It can also be scaled vastly more easily than a human workforce. RPA can perform just about any complex rule-based work and can do so through interaction with any software application or website. It's a robotic connection to the human world of the computer user interface.

Just what kinds of desktop activities can be automated? You name it. If a human can do it, a robot can in virtually the same way. Check out the possibilities in Figure 1-1.

REMEMBER

RPA isn't a replacement for the human customer-service workforce. It's ideal for tasks that require no human intervention — tasks that are often referred to as *unattended.* Plenty of tasks require a human connection, but in many cases at least a portion of the work can also be automated through RPA — such tasks are

known as *attended tasks.* Most important, there are many other high-value activities that need your employees' brainpower, and that happen to be a whole lot more interesting for them. RPA lets software robots optimize your business processes, leaving the humans more bandwidth for the high-value needs.

Mouse Selection
Field Entry
Copy & Paste
Transact with any IT application in the same way a human would, to perform rule-based work
Screen Navigation
Log-in/out of applications
Web Services Invocation & DB Queries

FIGURE 1-1: Automating any desktop activity.

Check Figure 1-2 for insights into how RPA fits into your operation.

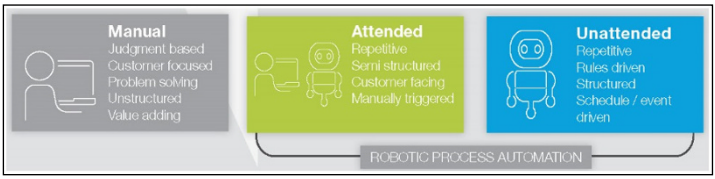

FIGURE 1-2: Seeing where RPA fits in.

Areas Ripe for Automation

RPA can help just about every vertical in your organization improve efficiency while also helping both customers and employees feel more satisfied. What's not to like?

The back office and the contact center would seem to be the most obvious places where this kind of assist can make a difference.

Software robots can handle tasks completely from start to finish, and in other ways they can work hand-in-hand with human employees, as their digital assistants, for more efficient and effective work. But that's just the beginning.

REMEMBER

Your human resources (HR) operation can also find better ways to get work done through RPA. This concept comes from the world of IT, and it's helpful to that part of your organization, too. Others who will be glad to meet the new robots include those working in finance and accounting. Process examples include account verification in IT and the creation of letters of employment in HR.

See Figure 1-3 for a summary of various industries and their functional processes ripe for automation.

ROBOTS OFFER A HELPING HAND

RPA has all kinds of applications in virtually every industry. Read on for a couple of real-world examples of how RPA has helped solve problems and improve efficiencies.

A third-party call center had the task of updating customer details for a government agency. The agency, however, couldn't grant call center employees full access to its internal systems due to access restrictions. One solution would've required the agency to hire hundreds of additional employees, which wasn't a feasible plan.

The alternative solution employs software robots that copy the details gathered by the call center into the internal systems. The system's 200 robots handle 25,000 cases every day and do so without all the extra expense. Desktop robots also help agency employees more effectively field complex requests for financial information that used to require navigation through screen after screen of information.

Meanwhile in the world of retailing, a major player is using an interactive voice response system to schedule deliveries for customers. For each case created by the IVR system, a robotic automation uses ZIP codes to find a delivery vendor, opens that vendor's scheduling app, schedules the delivery, and sends a notification to the customer. The system processes more than 150,000 cases annually, saves some 4,000 hours of human work time a year, and has an error rate of zero.

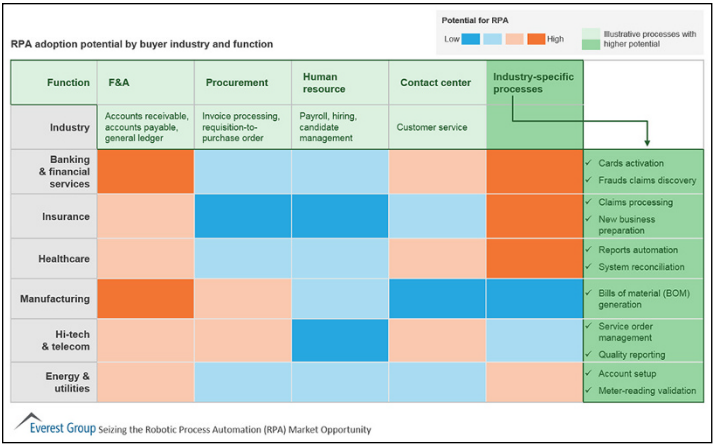

FIGURE 1-3: The RPA opportunity varies by industry and function.

Seeking an RPA Solution

RPA is technology — pretty sophisticated and amazing technology, in fact. So it probably falls within the realm of your organization's information technology (IT) department, right?

Not exactly. And it's not just an HR matter, either, despite the fact that RPA can make employees more efficient and potentially help them be happier (and on the flipside, potentially eliminate some of their jobs).

It isn't just a customer-service thing, either, despite the fact that the technology can yield significant improvement in customer service and satisfaction. And it's not entirely in the bailiwick of finance, even though the people watching the bottom line are almost certainly going to love what they see once your automations start to take hold.

REMEMBER

The solution belongs to everyone, really. Representatives from multiple areas will want to be part of planning your RPA implementation, from the business side to the IT world. All have valuable input to provide, all have some benefit to gain and some risk to share, so all need to have some skin in the game.

One more player in the game should be a qualified RPA vendor. There's more discussion in Chapter 3 regarding the comparative benefits of taking a do-it-yourself approach versus employing outside expertise to help bring your developer competency up to speed.

TIP

The truth is, there's a sweet spot between DIY and full outsourcing that can help your organization launch RPA comparatively quickly and smoothly, while learning the ropes along the way. It's an approach that may have a higher upfront investment but promises a long-term payoff.

Seeing the Value in RPA

What can RPA do for your organization? You'll see significant and measurable improvements in a number of areas:

- **Customer satisfaction:** By freeing up your customer-service personnel from forms and tabulations, you're making them all the more available for attentive customer service. You're also reducing the opportunity for errors. The result is an increase in customer satisfaction and much greater ability to meet the requirements of service-level agreements.
- **Productivity:** Compared with humans, software robots have been clocked completing the same tasks about five times faster. They also work 24/7 and don't ask for time off, don't eat lunch, or don't visit the restroom. Beyond that obvious increase in productivity related to those tasks, you've also freed employees for unstructured problem-solving. You're increasing their satisfaction and efficiency, and that boosts productivity even further.
- **Accuracy:** Face it . . . humans make mistakes. Robots are 100 percent accurate, 100 percent consistent, and 100 percent compliant with policies. The more you turn over to robots, the fewer clerical errors you experience, and the more time you save that used to be spent correcting those errors.
- **Resource utilization:** Offloading the mundane tasks to robots frees up your team to handle the tasks that add the most value to your business. What's more, after you've

turned a portfolio of tasks over to a robotic workforce, you're more able to respond to a spike in demand or a lull. That's good for customer service and helps ease HR headaches.

- **Return on investment (ROI):** All kinds of improvements can yield positive ROI, including both technological advancements and upgrades in your human workforce. What's notable about your robotic workforce, after you flip the switch, is that your ROI shows up with lightning speed. Your operating costs will drop quickly, and everyone likes ROI that doesn't take forever to show up on the bottom line.

Stay in Control

You wouldn't send a group of human employees onto the job without management and monitoring. It isn't a matter of not trusting them to do their jobs properly, but rather wanting to ensure that activities are carefully and properly orchestrated, coordinated, governed, and executed. And certainly, part of management is regular evaluation of the job each worker is doing, so that you can address any issues promptly and effectively.

A digital workforce needs to be managed and monitored too. You need to ensure that your robots are performing their work flawlessly and in a timely manner.

REMEMBER

A quality RPA solution will include a centralized management control room overseeing the work of the automation robots. Some of the work handled by the control room is task queuing, collection of data regarding process completion, monitoring on the overall system's health and livelihood, and allocation of robotic resources that matches the demand at the time.

Supervisors in the control room can keep an eye on the processes that specific robots are working on and how long it's taking them to get the job done. See Figure 1-4 for an example of what this looks like. The system keeps tabs on transaction successes and failures, and if there is an issue that needs the attention of a supervisor, the system sends up an alert.

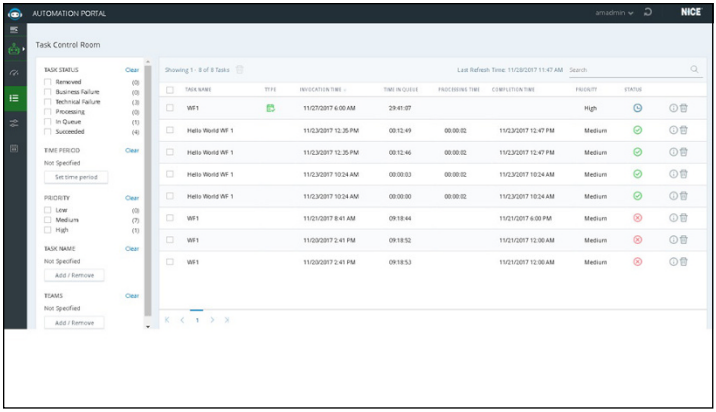

FIGURE 1-4: The robotic control room.

With the control room, the RPA system is reliable and scalable, and there's complete control and visibility, with a dashboard providing operational insights. Processes can be prioritized, scheduled, as well as easily started, stopped, and paused.

At a large organization, the RPA control room can be quite the busy place. Remember that one of the advantages of the whole concept is its ability to easily scale as needs increase. Imagine an installation with as many as 25,000 robots on the job simultaneously, handling a million tasks every day. That's not science fiction — it's the reality that is in place today in the most robust RPA settings.

IN THIS CHAPTER

- Analyzing the desktop
- Understanding attended automation
- Linking attended and unattended automation

Chapter 2
Automating Processes On and Off the Desktop

To get a handle on how RPA can help your business, you need to get a good understanding of just how your business operates now. You need to know what's working well and what could work better.

This chapter explores how you gather and analyze data to help start down the automation path, explains the difference between unattended and attended automation, and discusses how the two concepts can work together to put your operation in a much better place.

Analyzing Desktop Activities

Most organizations conduct a lot of business on computer desktops, and many have hordes of employees on computers, all doing virtually the same thing. Think of a customer-service operation, for example, with scores or hundreds of seats. That's an operation just brimming with the potential for performance improvement.

REMEMBER

The topic of this book is, of course, automation — figuring out how to let software robots handle at least some of the work done by these humans. That's a noble goal, and making it happen involves first conducting a careful study of what those people are

doing on their computers. This kind of study helps you find out which of the many desktop processes are best suited for automation. Figure 2-1 gives an indication of the kinds of things you can learn through this kind of analysis.

FIGURE 2-1: Learning from desktop analytics.

Desktop Analytics closely monitors your employees' desktop activities and processes as they point, click, type, and navigate their way through applications and processes. It aggregates that data from all the desktops being monitored in order to prepare reports for deep analysis.

The result is kind of like what happens when a person with nearsightedness puts on glasses for the first time — suddenly, it's possible to see a lot of things you had no idea you were missing. Bottlenecks, inefficiencies, and productivity gaps show up clearly. So do best practices. You can more easily and objectively identify who the top performers are and who needs help bringing their work up to speed.

Desktop Analytics uses its data-driven intelligent decisioning engine to identify processes that are the best candidates for RPA and guidance. And it spotlights the optimal process paths for building those automations or creating guidance.

Automation on the Desktop

You can't hand off absolutely everything to a robot, but your human team can work hand-in-hand with the robotic workforce. This is the essence of *desktop automation* (also known as *attended automation)*.

This arm of RPA handles routine desktop tasks even as the human workforce remains engaged. It can create call summaries, for

example, saving a step for the customer-service employee. It can automate a technical troubleshooting analysis or generate a trouble ticket quickly and effortlessly. It can pull customer data from multiple sources into a single view, saving your agent the trouble of looking all that data up in separate searches. It can create quick links to various key actions and applications.

TIP

Your automated desktop solution can also provide process guidance for your human agent. It can outline the steps for new or complex processes. It can offer the next-best-action. It can assure policy adherence. It can bring up the most pertinent sales scripts automatically. And by doing all these things, it can make the process of your employees' onboarding a whole lot easier and more successful.

REMEMBER

Desktop automation becomes, in essence, a personal assistant for each of your desktop employees. This assistant can, in fact, be personalized to match the needs, proficiencies, and skills of each employee. The personal assistant is always there, ready to be triggered by the employee's desktop activities, eager to help execute any routine activity on behalf of the employee, or offer assistance and tips for more complex processes. Your employees are going to love having their own personal assistants! Figure 2-2 shows what this type of assistance could look like in a telco troubleshooting process.

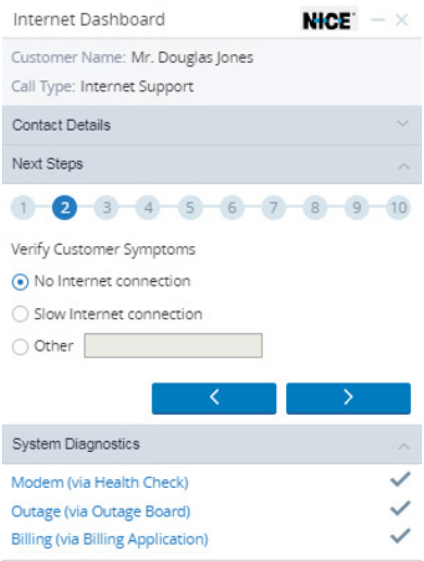

FIGURE 2-2: An example of desktop automation guidance.

Attended and Unattended Automation — Better Together

How much automation does your organization's customer-service operation need? A little or a lot? You'll find that there are helpful solutions for a whole range of situations, and your best bet is to peruse the menu and pick a variety of options. That includes both robotic and desktop automation, two menu offerings that pair very nicely.

Robotic automation generally refers to server-based robots designed to automate complete processes, that don't require any human judgment or intervention, in an *unattended* way.

REMEMBER

In the preceding section, "Automation on the Desktop," we explain that attended automation employs desktop robots to automate repetitive desktop tasks. Desktop robots also provide employees sitting at those desktop screens with accurate information and guidance when and where it's needed.

REMEMBER

As you think about processes, it may be obvious that some of them can be handed off to a robot completely without any human intervention needed. And it will likely be clear that some processes will continue to need the human touch. But keep on thinking creatively, and you will likely come up with a situation that calls for attended automation for much of the process, but at some point you may be able to trigger an unattended workflow.

TIP

That may, for example, happen toward the end of a customer call. A desktop automation robot has been helping the customer-service representative zip through the more mundane tasks while aiding the caller, and has been making next-best-action suggestions. Finally, as the caller hangs up, the process switches to an unattended flow, as the robot finishes dotting the i's and crossing the t's, allowing the CSR to quickly move on to the next call in the queue.

IN THIS CHAPTER

- Deciding whether to DIY
- Checking out the automation cases
- Getting the ball rolling
- Making change happen successfully
- Continuously improving

Chapter 3
Getting Started with RPA

This chapter focuses on how to get started with robotic process automation (RPA). It explores the question of whether this is something you can do on your own or whether some outside help would be in order. It discusses how to identify automation cases, how to ensure that change goes over smoothly, and how to keep momentum going for further improvements.

DIY or Hire It Out?

After you and your organization's leadership are sold on the benefits of RPA, you're going to want to dive in as quickly as possible . . . like, yesterday. There are so many hassles and slowdowns that RPA can address, who wants to wait for the improvements? The question is, what's the best approach for creating and staffing your automation team? Is this expertise you want to have on your own payroll? Can you outsource this vital work? Should you?

You, of course, will have to be the one to answer such questions. There is no book that knows the ins and outs of your organization and your situation better than you do. This section gives you some thoughts to consider.

The virtues of hiring it out

If speed is of the essence, this is likely the fastest way you will get to developer competency. You can buy a team a lot faster than you can build one. That doesn't mean it's the right approach for you, though.

WARNING

For one thing, this is the approach with the highest total cost of ownership (TCO). No surprise here. If you hire a painting company to paint your bedroom, it's going to be more expensive than going out and buying a gallon of paint, a tray, a roller, and a tarp, and rolling on the paint yourself. Perhaps even more significant, will you own your knowledge asset once it has been created? Not necessarily. That's one of the downsides of the "hire it out" approach.

Okay, how about DIY?

It's less expensive to paint your own bedroom, and when it comes to ramping up your RPA initiative, a do-it-yourself (DIY) approach will also have a lower TCO. Put one checkmark in the "advantages" column. Also, build it yourself and you own the knowledge asset. Why wouldn't you want to own the knowledge asset? Another positive mark for DIY.

Now think about the last time you took on a large-scale painting project. It took longer than you thought it would, didn't it? And remember that time you dropped the paint tray from the ladder and splattered paint all over? Funny social media moment, maybe, but a hassle to clean up.

Here's the thing: Professional painters are highly skilled. You may be handy at a variety of household projects, but you can't just pick up a paintbrush and be anywhere near as proficient as a professional. The DIY job will take longer, and the quality level won't be as high. It would take you months to match the skill level of a dedicated painter.

REMEMBER

Likewise, the DIY approach to launching your automation initiative is going to have a slower advance to competency. That's just a given. Whether that's a minus for your situation, or you're fine with that, is your call. Do you have time to wait for your resources to become proficient?

Launch and learn

Compromise is often the best approach. Launch and learn is a combination of approaches, with your internal team learning from the hired experts as the two teams collaborate on development. It's essentially an on-the-job training approach with your internal team working almost like apprentices alongside experts. There's really no better way to learn a skill well.

REMEMBER

Yes, it'll cost more to launch this way, so the TCO at the outset is going to be higher. But once your internal team has learned the ropes through the launch, the TCO quickly retreats. Another plus: The learning curve accelerates. Your team achieves competency quite a bit more quickly using the launch-and-learn approach. And the icing on the cake: You own the knowledge asset once it has been created. Pretty good deal, right?

Building Your Team

Who in your organization should be involved in the adoption of RPA? The short answer is a sampling of representatives from all over, including those who know IT and those who are close to the areas where automation is to take flight. You need both the discipline of IT and the knowledge of the business.

Here's a key thought that may at first seem a bit counterintuitive: Not everyone on the team should be an expert. Yes, those designing automation processes need to be well versed at designing automation processes, and they need to team up with experts on the processes that are being automated. Especially when deploying an attended solution, if someone is a superstar at delivering a process, she might not be the best person to design a solution for the average processor. What is easy for a superstar to navigate might be painful for others.

TIP

Indeed, when it comes to assessing readiness of your automation — especially an attended automation that will be interacting continually with your employees — consider involving some employees whose achievement charts don't have quite as many gold stars.

TIP

Depending on the area in which your team is working, others may need to be involved. For example, compliance and legal specialists may want a seat at the table. Consider how great a tool RPA can be for generating compliance reports that need data from a variety of

places. But the legal and risk team also may have an opinion about the wisdom of replacing certain human tasks with robots. It's also worth considering where the automation team should "live." Does your organization have the acumen to do rapid development within the business? Should you get the professional experience of an IT team involved?

What Makes a Great Automation Candidate?

So what kinds of desktop processes are the best for automation? In some ways, the road you're about to travel isn't all that different from the path manufacturers have been following for some time now. On the assembly line, the lowest-hanging fruit for automation are those processes that are the most repetitive and require the least amount of human thought or creativity to complete successfully.

TIP

As you survey the landscape of work that your organization does regularly, you'll want to seek out processes that require little or no human decision-making. Repetitive, rules-based processes have excellent potential for automation. Some examples include searching, cutting and pasting, updating the same data in multiple places, moving data around, collating, and making simple choices. Be on the lookout for tasks that involve multiple systems that employees have been accessing separately. As on the manufacturing assembly line, if it's a mundane task, it just might be a good automation candidate.

TECHNICAL STUFF

A four-quadrant matrix can help shed some light. You're charting volume on one axis and people involvement on the other. By plotting various processes within your matrix, you can get a sense for which tasks have automation potential, which automations should be attended versus unattended, and which ones stand to deliver the most bang for the buck.

You'll be pleased to know that even the process of picking ideal automation candidates has, itself, been automated to a certain extent. The Desktop Analytics capabilities offered by NICE technologies offer a great example. See Chapter 2 for more info.

Where to Begin?

You know what they say about the journey of a thousand miles starting with a single step. Never mind the fact that it was ages and ages ago when that wisdom first emerged in China. The wisdom of starting small to get your progress rolling is very applicable to today's RPA journey.

REMEMBER

The launch-and-learn concept is ideal for building a backbone for your efforts, a foundation for your organization's automation journey. When it comes to internal development, you'll find a positive reception when you begin with something that can be deployed quickly and successfully. Get some of those projects under your belt before tackling a more complicated task.

A high-volume process is a great place to begin. However, it's usually best to steer clear of the most complicated high-volume processes at first. Go for one that is high-volume but less complex, and success will appear a lot more quickly. That'll help the whole RPA concept take root and win a warmer embrace from your team.

You can learn a few lessons from early RPA adopters. Check out Figure 3-1.

Prepare the organization
1
Positive alignment across all stakeholders (top management, process owners, and the technology organization) is essential
2
Change management is an integral part of the RPA effort and must be a priority
Ensure process viability
3
RPA is most effective with rules-based and consistent processes
4
The organization must develop an internal process audit to gauge the viability of RPA solutions before beginning RPA implementation
5
A phased approach to RPA, beginning with pilot projects, offers the most optimized deployment methodology
6
RPA is not the end of all human interaction; organizations must account for exceptions and manual decision-making
Understand RPA's impact
7
Pilot-phase processes should be well suited for RPA and should ideally showcase a high-impact, tangible business benefit to promote RPA in the broader organization
Build capability
8
Buyers must develop internal capabilities to manage and maintain the RPA environment
9
Buyers need to develop a resilient approach to RPA deployment to overcome challenges around vendor acquisitions, outdated technologies, etc.
Everest Group Seizing the Robotic Process Automation (RPA) Market Opportunity

FIGURE 3-1: Nine lessons from early RPA adopters.

MORE TALES OF ROBOTIC SUCCESS

Sometimes the best way to get ideas for how you can succeed is by seeing what others have accomplished.

A major European financial-services company found its fraud prevention center was getting busier and busier, with its employees bogged by down data entry and follow-up activities once calls had ended. Its service level agreements (SLAs) required it to take action within 5 minutes of receiving a fraud alert for suspicious credit card activity, but its ability to meet that need was getting slowed by mundane data entry.

The bank's RPA solution offers human agents quick on-screen pop-up windows that guide them through fraud investigations and interactions with credit card holders. Handling times are reduced, as are processing errors. The robotic system also has taken on the cumbersome wrap-up phase involving documentation of each case and its outcome. Agents are thus able to move on to the next case more quickly and meet the need for speed in fraud cases.

Another example is a telecom provider's fulfillment center. It handles thousands of inquiries every day, helping customers upgrade their phones. Processors in the fulfillment center are able to instantly tell which phones are in stock without having to consult the separate system that tracks such information — a software robot handles the task instead. Each time the robot assists, as many as 10 seconds are shaved from the processing time. Customers and workers both are happier, and the telecom carrier has ended up selling more phones.

A major courier-services company provides an example of using RPA to take human agents completely out of the loop in certain circumstances. Previously, call center agents handled claims and scheduled package redelivery. Claims could take weeks to resolve, and redelivery scheduling was inefficient. Now, a robotic solution reviews claims, checks refund eligibility based on business rules, transfers payments, and notifies customers by email, without any agent intervention. And automated redelivery scheduling lowers the volume of calls while also reducing errors.

Finally, in the utility sector, an oil-and-gas multinational handles 15,000 change-of-address requests every month. The previous process was error-ridden and time consuming. Once again, software

robots came to the rescue. The human workers still are involved in the process, but the robotic solution helped merge it all into a single interface for gathering customer data. The robots handle creating new accounts in the CRM system. The average time for a change request dropped from 11 minutes to just one.

Change Is Difficult

These pages are full of ancient wisdom, aren't they? Yeah, you already knew that change is difficult, as it always has been, as long as the times have been a-changin'. In this case, you're talking about taking tasks out of the hands of human beings and putting them into the hands of robots, asking people to trust machines, oftentimes without direct human supervision. Not every human is going to respond with an immediate thumbs up.

Of course, you're improving the system, so who's going to complain about that? You'd be surprised. Even if you're automating what is arguably a pretty bad system (or process flow) at the moment, you need to keep in mind that people have been using that system for who knows how long, they've been adapting to it and making the best of it, and they've got some significant professional and even emotional investment in it.

The first element of this change management is a bit of a no-brainer — your RPA solutions need to work as well as possible out of the gate if you want people to feel positive about adopting them. If they have performance or stability problems, or are not easy to use, they're less likely to win over hearts and minds.

Beyond that, users must be well-informed and persuaded that the new automations will deliver something of value to them. It's the old "what's in it for me?" question that is at the heart of successful change management. Users need a solid benefit, in terms of making their work lives easier or more fulfilling. (Notice the use of the word "or" there . . . in some cases, employees will find that robots free them from tasks that were boring but definitely easy, and fill their plate with work that's not as simple but definitely more interesting.)

Keep on Improving

REMEMBER

RPA is, by definition, a process improvement. And those who know the business of process improvement know that improvement is never a done deal — there's always room for more improvement. Indeed, RPA is a part of that whole philosophy of continuous improvement. The best RPA tools are not just tools for building automations, but for identifying and planning before the build as well as monitoring afterward.

The RPA solutions from NICE, for example, keep on providing insights after the process has been built, and you get windows into additional areas where productivity can be improved. You're continually optimizing your organization, and that's a real competitive advantage. Check out Figure 3-2 for a glimpse at the cycle of improvement enabled by RPA.

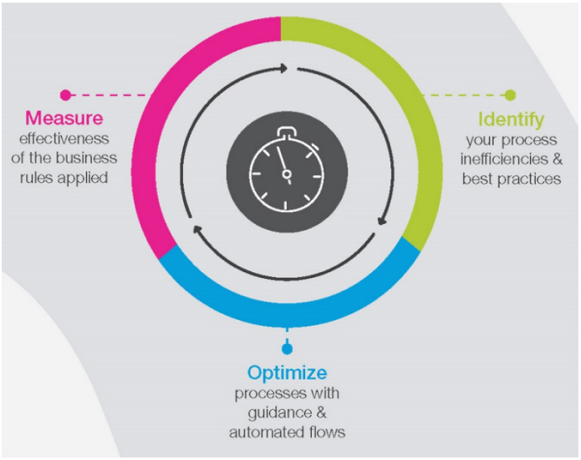

FIGURE 3-2: The RPA improvement cycle.

IN THIS CHAPTER

- Designing your automations and selecting your approach
- Watching connectivity
- Keeping up with the exceptions
- Clearing the hurdles
- Handling tasks with business insights

Chapter 4
Building Best Practice Automations

The actual work of creating automations can be simple or complex, which isn't a surprise because the processes you're automating are sometimes simple and sometimes anything but. The best advice for this job isn't unlike any other job you might tackle, from housecleaning to auto repair. Make sure you have the best tools, and follow the right steps.

This chapter takes a very high-level look at the business of automation design, keeping in mind that your real how-to will come along with the tools you acquire and from the experts you employ. This chapter also discusses strategies for keeping up with changes in the applications your robots are interacting with, and other potential glitches you might encounter.

Automations Design 101

The beauty of robotic process automation (RPA) is its ability to integrate with just about anything and everything in order to get its assigned task done. Your integration options may be on the backend, with connections to databases and enterprise web

services. And they may be through front end or desktop connections that take multiple forms.

REMEMBER

With backend connectivity, your automation accesses databases or enterprise web services under the control of a process automation server. To paraphrase Forrest Gump, that's just about all there is to say about that, because it's fairly straightforward. On the front end, though, there are a number of dazzling ways your automation can connect with desktop applications and other resources to get the job done, whatever job you're trying to get done.

Front end connections begin with object-based user interface connectivity. In short, that means your automation has the ability to read and write data as well as capture events straight from the user interface of the target application, just as any human user would.

Of course, that's an oversimplification. Truth is, an automation built through sophisticated tools such as those from NICE interacts with that user interface in a way that's quite a bit more sophisticated than a typical human interaction. Humans look at the screen, recognize the elements by what they look like and how they're labeled, and interact accordingly.

TECHNICAL STUFF

RPA recognizes each element by its properties and technology family, checking out its structure and hierarchy. Exactly where that element sits on the screen doesn't particularly matter to the automation. The NICE solution makes it especially simple for creating automations within certain popular brand applications, by establishing and updating connectors in such products as Siebel, SAP, PeopleSoft, and Salesforce CRMs.

Another way of connecting to desktop elements is via *controlled user interface connectivity.* Its power can be enabled by hidden fields and controls created by the application owner, carrying static information that's not visible to the human eye and not intended to be modified. Such information, as demonstrated in Figure 4-1, might be an account number, for example.

TECHNICAL STUFF

Other tools in your process automation provide additional capabilities. NICE automation tools, for example, include *surface connectivity* capabilities. What that means is the ability to pull in information from images, PDFs, and remote applications. Optical character recognition (OCR) combined with NICE advanced Shape Analysis technology makes this magic happen.

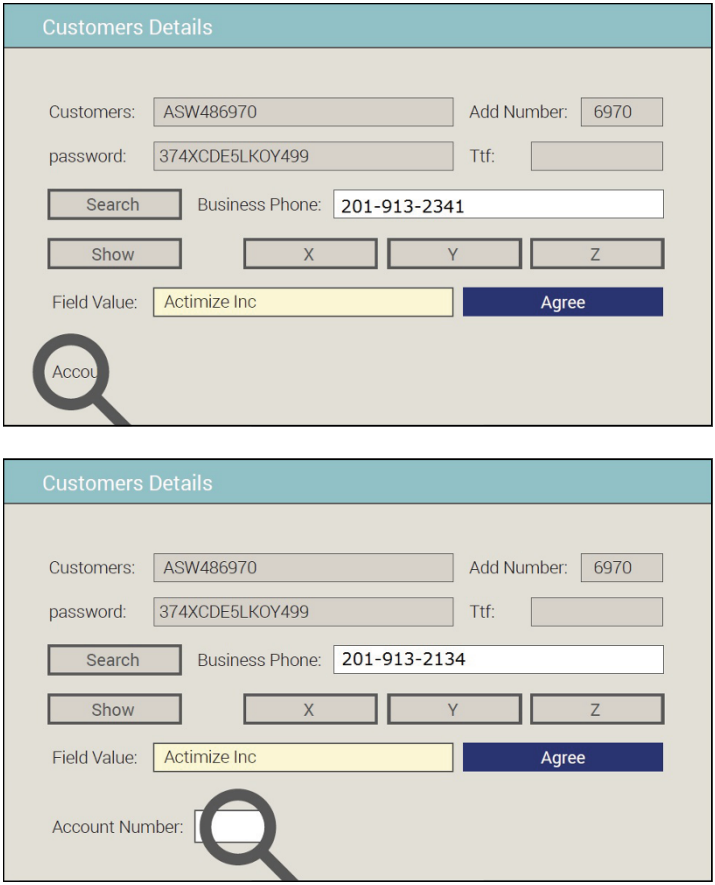

FIGURE 4-1: The hidden account number field.

The bottom line is that there are numerous ways that tools such as the automation solutions from NICE can integrate with your applications. Which way is best? It totally depends on the details of your enterprise and the needs that the solution is going to address.

Another key consideration is how to divide and conquer the task. Consider the challenge of constructing a building. There are so many different interdependent components, from the steel structure to the window systems to the interior walls to the electrical system to the plumbing to the floorcovering. Different crews work on different elements, sometimes sequentially but often

concurrently. In many cases, design elements from one floor can be reused on another floor, with little or no tweaking.

REMEMBER

The *layered approach* to automation development is similar, and is often the answer for complex situations. Different parts of the process automation are divided into different layers, each with its own logic and functionalities. Certain aspects will require the work of higher-end process architects, while other aspects can be handed off to more focused configurers.

TECHNICAL STUFF

This approach to automation design helps ease the process of development and also can make the automation easier to understand. At the top is your process layer, and below that are subprocesses that can be nested into main processes. Drop down another layer to find objects, or procedures for very specific tasks, and those can be built from yet another layer of components or screen interactions. The further down you go in these layers, the more the logic can be reused from one system to another and from one process to another. You can see the building of workflows in Figure 4-2.

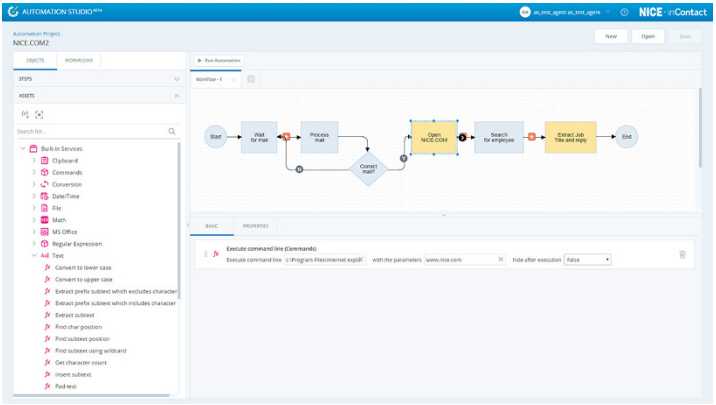

FIGURE 4-2: Building workflows in the Process Automation Design tool.

Recorder versus Design-Based?

The idea of recording a series of tasks on your computer screen has been around for many years. You may have set up macros a long time ago to provide some simple automation to your desktop work, and the macros you can build within applications such as Microsoft Excel have grown increasingly sophisticated over the years.

REMEMBER

Process recording is one building block that you may choose to create a foundation for your process automation. It's a pretty simple concept to wrap your mind around, and depending on what you're trying to automate, it can be quite helpful. But it has its drawbacks, too, so it's not for everything.

To boil it down to the basics, process recording follows the steps that a user performs and translates them into a workflow designed to replicate those actions. As such, it can make process automation fast and easy.

But it will often need tweaking to ensure that the final product is efficient and accurate. As the recorder watches the user at work, for example, can it tell whether the user has paused for a specific reason — or whether it's just a typical human delay? Will it put the spotlight on exceptions that will break down the process? Can it capture automations with different path options (such as approving or rejecting a claim based on customer details and requirements)? Can it understand the business reasons why the automation took a specific path and not another? No. Also, process recording isn't as configurable as the layered design process and doesn't lend itself to best practices of reusing modules and subprocesses.

Design-based automation creation is, to be sure, not as simple as turning on a recorder and diving in. It's much more detailed, requires more planning, and may involve more people collaborating. But for most cases, it's what the doctor ordered for building enterprise-grade automations. And with the right developer tools that have drag-and-drop functionality and other powerful, yet easy-to-use, features, business users who aren't coders are often surprised by what they can accomplish.

Change Management

It's almost magical, the way your robot interacts with virtually any application. It navigates to the right places to copy or enter data and clicks on the right links to achieve the desired action, just like any human operator would, but faster and more accurately — and without nodding off for an after-lunch snooze.

But virtually every human who has navigated a website or a software application knows how confusing it can get when the site is

redesigned or the application is upgraded. You've gotten to the point where your interaction with the elements on the screen are pretty much second-nature, and then one day something to which you were accustomed is no longer in the same place, or it's named differently, or some other part of its functionality has been altered. You stop in your tracks, trying to figure out what happened and where to go from here.

WARNING

The same thing can happen to a process automation you've created. It works like a charm until the developer of a particular application changes things, perhaps by removing a field that was part of an automated process, or changing its identification.

So then, everything goes haywire and you're back to square one to redesign the process automation, right? Nope. Don't underestimate the smarts of RPA. Consider the solution from NICE called Connectivity Watcher as illustrated in Figure 4-3.

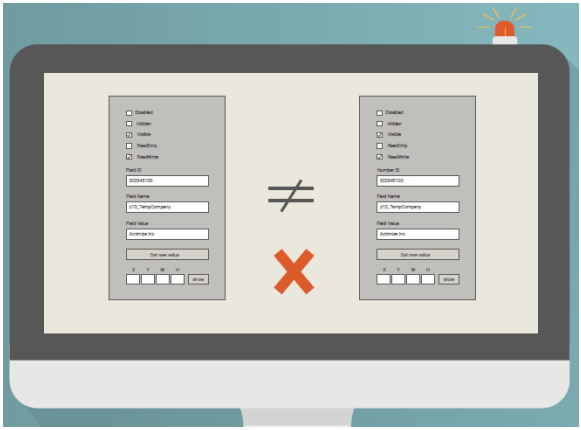

FIGURE 4-3: The Connectivity Watcher.

Connectivity Watcher watches the process in action when it's working properly, learning about the events and gathering statistical data. It keeps on watching the process during runtime to see how the current data compares to the historical statistics.

Mismatches in connections will immediately show up in the stats, and Connectivity Watcher will issue an alert that something has changed. Not only that — it will identify where in the process the breakdown has occurred, which makes it a whole lot easier

to fix the problem. And thanks to the layered approach, a fix can be done once and impact all the different automations using the relevant field or control.

TECHNICAL STUFF

Remember that screen connectors link your robot to the user interface layer of the application in question, whether it's commercial or homegrown. The connectors can read, write, and execute functions on that application. If those connections are broken by changes in the application, the automation will no longer work properly.

Bumps in the Road

Whatever kind of automation you're building, robotic or desktop, attended or unattended, your whole point is to take a workflow and hand at least part of it over to a software robot. A workflow is a series of steps that must be completed, and once it's done, it is often followed by another workflow.

That's a whole series of interdependent events, and like a game of Jenga, the whole thing is liable to come crashing down if it loses a vital building block. (Or perhaps Mousetrap is a better childhood game to reference for what happens to a process when a key event doesn't go as planned . . . either way, the result is certainly not fun and games.)

TIP

Proper automation construction can help avoid potential pitfalls. For example, you need to validate automation steps after they happen and before continuing to the next step to ensure the target application is ready for processing. If your automation is going to search for some term that gets entered into a search box, it's not going to go anywhere if that term doesn't get successfully cut and pasted into the search box.

WARNING

Using hard-coded timers as a condition to go from one automation step to the next is a big no-no — you want to build the automations to be event-based. That way, the process moves as quickly as the target application allows, and on the other hand, it doesn't start failing in instances where the target application moves more slowly than usual because of some sluggishness in its backend connection.

REMEMBER

Another aspect to consider is what's known as *exception handling.* RPA works well because the robots know how to follow the rules — but of course, it's common knowledge that all rules have exceptions. A solid automation includes well-thought-out exceptional handling, so the robot knows what to do when the process doesn't follow the rules.

There are a couple of main types of exceptions. *Business exceptions* happen when a process encounters some variation from the normal business process that the automation has been written to carry out. For example, maybe the automation comes across data or inputs that don't conform to the usual criteria. A common way for an automation to handle a business exception is to pause that particular task, flag it, and send it to a human employee for alternative processing, and then move on to the next task on the list.

A *system exception,* on the other hand, is technical in nature. For example, an application crashes or doesn't respond properly, or a new dialog box has been added that the automation doesn't know how to handle. A variety of exception handling strategies are available for system exceptions. One common approach is to cancel the case with the exception, flag it with details about the issue, and then move on to the next case in the queue. The exception handling may include instructions for restarting the process, which could be necessary if an application has crashed. Your automation may keep track of the number of failed attempts to get back on track and shut the process down entirely until the problem can be resolved.

TIP

Another work-around for business exceptions is to utilize attended automation and send the exception to be solved by a person, on the fly. After the person resolves the issue, the automation kicks back into action.

It almost goes without saying that the more complex a workflow is, the greater the chance of something going wrong. As you design a process and illustrate what it is intended to do, keep readability at front of mind. It needs to be clear what the workflow does, so keep it small, with clear code.

TIP

If an automation is getting a bit out of hand in its complexity, nested workflows are a good answer. They can then be reused in multiple places in the main flow, too. Your main workflow can then be a relatively simple series of steps, each calling a nested workflow, and the calling step will then wait until the nested workflow has completed.

Business Insights Powered by Analytics

Ultimately, you want to achieve measurable results as you spread process automation concepts throughout your enterprise. You're trying to impact a number of different metrics, from productivity and efficiency to customer and employee satisfaction.

REMEMBER

Your system, once built out, is perpetually gathering and reporting data that can help you quantify how well it's working, how well your people are performing, and where additional improvements are possible.

In essence, you need to know how both your human workforce is performing, and how your robots are faring. Business insights and operational dashboards handle both tasks.

Business insights are available by collecting selected data about the essence of the automations and making it available in a powerful and easy-to-configure reporting platform, where you can slice and dice the data to get the complete picture of what your virtual and human workforce are doing. For example, think of your robots processing credit claims. You can then get data such as the total claims processed or the average claim, which types of customers are claiming credits, from which location, and for which product or service.

Regarding operations, you're making sure your workforce is up and running as expected. Dashboards within the robot control center keep close tabs on the functionality of each robot, spotlighting bumps in the road and flagging issues that need to be addressed. Desktop analysis, meanwhile, monitors employees' processes and tasks, as well as their application usage, to shed light on automation possibilities and also help improve employee productivity and efficiency.

IN THIS CHAPTER

- Defining a center of excellence
- Choosing your teammates
- Achieving excellence
- Getting certified

Chapter 5
Setting Up a Center of Excellence

You wouldn't be going down this path if you weren't interested in achieving excellence. So why not go all-in? Why not let your employees and the world know just how committed you are by establishing an automation center of excellence?

This chapter defines just what is meant by center of excellence (CoE) and spells out what kinds of roles likely will be employed in your center. It details how to get your center up and running, and how to get it certified.

What's a Center of Excellence?

If your organization really hopes to fully embrace automation and process optimization, you need to make a statement. It's important to declare your intent in a big way and send a message both internally and externally.

REMEMBER

Your CoE is a symbol of your commitment to process automation and your dedication to adding value and identifying opportunities for improvement. After you've put the software in place, your CoE becomes a magnet for developing and attracting the necessary skills and capabilities. Raise the flag over your CoE, and it's an invitation for every business operation across your organization to identify new needs for optimization and uncover opportunities for increasing efficiency and reducing cost.

Your automation CoE also helps to ensure structured governance. With the right expert assistance, your CoE will establish methodologies, create training, identify best practices, and adopt the most effective tools.

Players in the Production

You might think of a CoE as an office or department within your organization, but that view misses the most important element: the people within the center, what they do, and how the center's governance encourages fruitful collaborations. The composition of your CoE's governance team is a critical part of your automation journey.

REMEMBER

Just like any other kind of management team, the CoE is comprised of members who utilize their expertise and skills to achieve the expected results. Creating your center means bringing together the right business analysts, connectivity experts, automation developers, trainers, and change management gurus. An excellent project manager will coordinate all these resources across multiple automation projects.

The CoE team provides the brains behind your organization's automation projects, and it works directly with representatives of various departments across the enterprise who become the business owners of the individual projects. The CoE team helps identify potential automation projects and measures how valuable each automation will be, and then it collaborates with the business owners to design, deliver, and maintain these projects.

This process is ongoing, living, and dynamic. Even after a specific project has resulted in an implementation of automation, the job isn't done. The CoE team keeps in touch with the business domain

where automation has been delivered. Ongoing contact ensures that the right changes have been made and that value is realized in the long term.

The key roles

REMEMBER

Keep in mind that every organization is unique and different, and one size definitely doesn't fit all. Also know that in some cases the same person may be called on to fill more than one of these key roles on automation CoE team:

- **CoE manager:** The CoE manager leads and coordinates all resources and activities related to the automation center of excellence.
- **Automation business analyst:** The person filling this role is a subject matter expert who analyzes potential challenges and identifies automation solutions. The analyst works with business groups to prioritize potential use cases, then creates the detailed design documents that the development team uses to complete each project.
- **Automation technical lead:** This role may be known as the automation development master and monitors the quality of the developers' output and spreads best practices across the development team. This role also helps to define the implementation layer (common or local).
- **Automation developer:** This is the end-to-end solution creator, the expert who executes the various automation processes by using such tools as NICE APA Designer to create robotic automation projects.
- **Automation connectivity engineer:** This is the person who manages and maintains the integration layer.
- **Automation administrator:** This is the role responsible for technical management and maintenance of ongoing automation solutions.
- **Automation rollout and change management lead:** A successful implementation depends on this person, who handles the education and enablement activities for all those people who will be using the automation solution. This person oversees all change management activities, without which maximum adoption is difficult to achieve.

- **Automation data analyst:** This team member defines and measures the automation value.
- **Automation tester:** This member of the CoE team runs the end-to-end solution testing. She executes testing of the various processes of automation, typically using such tools as NICE Automations software in the test environment. Testing includes error handling and data validity.

Centralized or otherwise?

REMEMBER

After you know what the key roles are (see the preceding section), you still must figure out where they work. The answer varies from one organization to another. There are three primary ways to structure a CoE within your organization:

- **Centralized:** The entire CoE team is located in the same organizational unit.
- **Semi-distributed:** The CoE benefits from central management, but automation business analysts are strategically located across relevant business units, such as finance, human resources, and customer service.
- **Distributed:** The CoE still has central management, but automation business analysts and automation developers are placed across the various business units where automation is being implemented.

Putting the E into a CoE

What does it really mean to have a CoE? The bottom line is that you've collected the knowledge and skills needed to achieve excellence in whatever area you're exploring, in this case automation.

REMEMBER

Training is at the heart of this quest for excellence. It's helpful to explore examples of how this takes shape in the field. Companies that tap into the expertise of NICE are guided through a variety of enablement activities that train CoE employees and ensure the center is successful. This section gives you a glimpse of how it works.

Enablement is the answer

REMEMBER

NICE's Enablement offering provides tools allowing the CoE to promote, design, and support the latest version of NICE automation solutions. Those tools are accompanied by training and certification for the technical personnel involved in the project. Certification is essentially an invitation to an RPA developers community and also a key to support services because NICE certified engineers are able to open tickets with the NICE support centers.

Adding in on-the-job training

After completing the initial training, a NICE automation team joins members of the automation CoE governance team in a required joint "coached project" implementation. The first phase involves having an automation process delivered by the CoE automation governance team with guidance from the experts. The CoE governance team manages the second phase independently with the NICE automation team supervising.

This is known as the *guide me, let me* practical training methodology. How the experience moves from "guide me" to "let me" varies from project to project, as determined by the coaching team from NICE.

Phases of the coached project

The phases of this coached project follow the complete CoE workflow. The aim is to demonstrate the full cycle, from identifying the need through development.

- **The needs analysis:** This phase involves a close examination of the business challenges. The aim is to uncover potential processes that can be automated, and assess the potential return on investment that automation would bring.
- **Connectivity:** The team ensures all the required applications have connectivity, and defines the layer of the implementation (is it common or in the local?).
- **Project design:** The CoE manager delivers the requirements to the automation business analyst, who gains an understanding of the expected key performance indicators (KPIs)

and translates the requirements to the design document in order to generate those KPIs.

- **Development:** Here, the development team completes the full development cycle of an automation process, or several automation processes.
- **Testing:** This phase calls for the developed automation solution to be tested in a production-like environment. It's reviewed and adjusted as needed, to ensure that it's ready for production and that the relevant stakeholders have signed off.
- **Rollout and change management:** This is the actual rollout of the automation solution to production so that business users can adopt it. If it's an attended automation solution, it's going to require more training and comprehensive change management. See Figure 5-1 for a rollout example.

FIGURE 5-1: An 8-week rollout example.

Getting Certified

Your CoE is up and running. You're ready to lead the organization into the future, right? Well, one more thing to consider: having NICE certify your automation CoE.

It's a path toward creating a best-in-class robotic automation program. After you've been through the coaching process, acquired the best tools, and achieved the most relevant knowledge, you'll be truly independent, owning every aspect of delivery and support.

REMEMBER

There are a lot of good reasons for joining the community of certified CoEs. To begin with, you need to keep up with software changes, stay on top of new business needs, get familiar with new applications connectors, and the like. That means ongoing communication with both NICE and with peers from the industry.

Join the certified CoE community to ensure:

- **Enablement:** This includes training refreshers, knowledge of new product capabilities, updates to certification, access to joint marketing funds, and more.
- **Software and services (development) support:** This is key for ensuring that your projects are successful.
- **Access to a dedicated portal:** Here you'll find relevant collateral and materials.
- **Consultation with and learning from other CoEs:** Share ideas with other organizations that are also going through the automation journey.

Being part of the broader RPA community gives you a platform for connecting with partners that can facilitate greater success. Raise questions with peers and subject matter experts, offer your own ideas and suggestions, and be a part of activities and even contests involving other automation CoEs.

After your CoE is certified, you'll want to maintain that certification. Keep up with the relevant training events and certification updates and be ready to upgrade your certification to cover each new release. The process of maintaining certification will allow you access to helpful webinars and ongoing education.

In short, there are plenty of good reasons to establish a CoE and get it certified. Check Figure 5-2 for a synopsis.

Establish robotic automation CoE governance
Acquire knowledge and skills per role
Put knowledge into action through on-the-job training
Take the lead – manage your CoE independently
Grow and maintain your CoE with NICE automation community
NICE

FIGURE 5-2: The value of a CoE.

IN THIS CHAPTER

- Expanding your robots' capabilities
- Understanding the role of artificial intelligence
- Integrating with bots
- Finding opportunities for automation
- Handling exceptions
- Teaching robots to read
- Getting the most out of cognitive automation

Chapter 6
Getting Smarter through Cognitive Automation

Artificial intelligence (AI) has been the subject of countless science-fiction books and movies. More often than not, it has been a cautionary topic. But it really shouldn't be because the potential benefits are pretty remarkable. In this context, the point is creating robotic solutions that can learn through experience. The gains of robotic process automation (RPA) can build on themselves that way.

This chapter defines what's known as *cognitive automation* and explains how AI helps automation robots get better at what they do — and even get better at identifying more automation potential. It explores how AI can help the robots themselves deal with exceptions, so humans don't have to.

Adding Brain Power

Remember that unattended automation takes charge of an entire, routine process that needs no human attention. For more complex situations, attended automation puts part of the process in the hands of the robot while leaving the human employee to handle the elements that need human decision-making and input. Both types of automation are good for increasing efficiency and enhancing the bottom line. See Chapter 2 for more information on attended and unattended automation.

REMEMBER

To those concepts, add one more: *cognitive automation.* This is a term for automation that leverages such technologies as optical character recognition, text analytics, and machine learning. It's cutting-edge stuff, the most comprehensive kind of RPA out there.

What AI Brings to the Table

Cognitive automation can impact the experience of both your workforce and your customers. Within your organization, you'll gain from process automation that's enhanced by AI. Those to whom you're selling will experience the new world of AI-based automated customer engagement.

Automated customer engagement

Surveys show an increasing percentage of customers, especially millennials, are not only fine with customer service contacts that don't involve actual humans — they actually prefer it that way. Given that, your non-human customer engagement had better be up to the task.

AI-based automated customer engagement makes use of a variety of tools that interact with customers and are informed by AI:

- **Chat bots:** This is online chat capability that lets the customer feel like he is instant-message chatting with a human customer service representative (CSR), but in reality, a bot is carrying on the conversation.
- **Voice bots:** This technology is much like the chat bot concept, but involves speaking and listening rather than typing on a screen. Again, no need for actual people.

- **Virtual agent:** Also similar to the preceding technologies, virtual agents allow for lifelike customer-service interactions between a human customer and your organization's information systems.
- **Automated mails:** Back in the day, things such as email had to be sent by a person clicking the Send button. AI-based automations can watch for the triggers that suggest it's time to send an email, then compose and send the correspondence.
- **Dynamic interactive voice response (IVR):** IVR is the unattended phone tree that has sometimes gotten a bad name because poorly designed systems send callers through a maze of "press 5 for this" and "press 3 for that." Dynamic IVR adjusts the phone tree for repeat callers in a way that anticipates where they will need to go, helping them avoid the maze. AI makes it happen.
- **Visual IVR:** This is another way of helping callers avoid the standard IVR maze, by providing easy-to-navigate visual menus on their smartphones or computers. The users touch or click their way through the menus and get to their desired service quicker with much less frustration.

AI-enhanced process automation

REMEMBER

AI also can take the already amazing world of RPA and make it even more impressive in its capabilities. Here are some things AI brings to the world of process automation:

- **Improving data:** Through natural language processing and text analytics, AI can help an automation transform data from unstructured into structured. After data is structured, it can then be used by the robot in the automation flow.
- **Judgment calls:** AI enables predictive analytics, and that's the foundation for decision-making. The automation is better able to make judgment calls based on the situations that present themselves.
- **Getting better:** Machine learning is pretty much what it sounds like . . . the ability for the automation process to learn, expand capabilities, and continually improve certain aspects of its functionality on its own.

Things to do right now with cognitive automation

TIP

AI capabilities today can ingest unstructured data, such as documents and emails, and what's in that unstructured data can in turn support ongoing automation. Following are some of the possibilities:

- Optical character recognition (OCR) and image identification
- Extracting intent and entities
- Text analytics
- Sentiment analysis
- Categorization
- Classification
- Change format detection
- Handwriting identification
- Voice recognition

AI and cognitive automation on the horizon

In the foreseeable future, you'll be able to use AI to independently map, identify, and automate processes. And as everyone knows, technology grows by leaps and bounds pretty quickly.

Also, AI is able to train robots to handle exceptions, by learning from the ways that human agents handle exceptions in attended automation processes. This is a hybrid automation model.

REMEMBER

On the slightly longer-term horizon, expect to witness what is known as *cognitive decisioning* or *decisioning automation.* This means using AI to automate processes that aren't rule-based, processes that have aspects of decision making that presently would need to be handled by humans. To make this happen, specific use-case solution capabilities will be required.

Bot Integration

The path that you begin walking when you introduce RPA into your organization can lead to amazing places. Automating processes inside your customer-service organization and other internal places can bring remarkable improvements, but wait until you see what happens when you begin to expand the RPA ecosystem in ways that are possible through tools such as what NICE brings to the table.

For example, how about integrating client-facing chat and voice agents, on top of the cognitive RPA core of the NICE system? You can bring your own bot, or choose to integrate with one of a number of ecosystem partners.

Figure 6-1 shows you how cognitive automation can work hand in hand with chat bots, voice bots, and virtual agents for automated customer engagement.

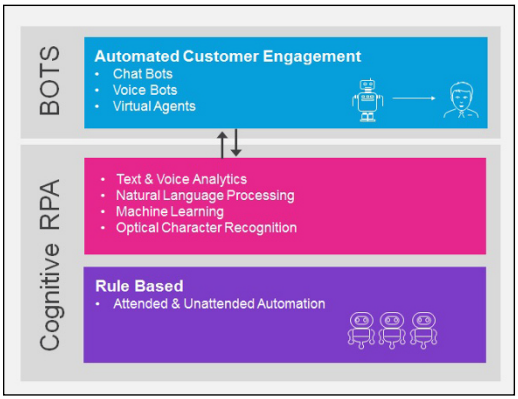

FIGURE 6-1: Integrating cognitive automation into customer engagement.

Figure 6-2, meanwhile, diagrams in more detail the RPA integrative framework that joins RPA with chat bots for an end-to-end automated self-service experience.

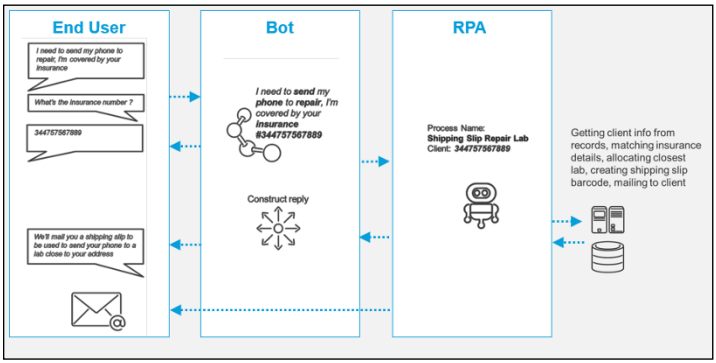
End User
I need to send my phone to repair, I'm covered by your Insurance
What's the insurance number ?
344757567889
We'll mail you a shipping slip to be used to send your phone to a lab close to your address
Bot
I need to send my phone to repair, I'm covered by your Insurance #344757567889
Construct reply
RPA
Process Name: Shipping Slip Repair Lab
Client: 344757567889
Getting client info from records, matching insurance details, allocating closest lab, creating shipping slip barcode, mailing to client

FIGURE 6-2: The RPA integrative framework for cognitive bots.

Automation Finder

How many times have you seen a new technology or product come along that makes life easier and seems both brilliant and simple — something that makes you say, "Wow, I wish I had thought of that!" That's the thing about great ideas. They're always out there, and there can be great rewards and immense satisfaction for the person who discovers an opportunity.

REMEMBER

It's pretty much the same way with process automation. There are fantastic opportunities all around, just waiting for someone to come along, discover them, and turn them into reality. In many cases, the biggest hurdle isn't the solution, but rather, discovering the problem to be solved. Opportunities aren't always easy to spot, and after you've spotted one and are in the midst of tackling it, you might forget to keep looking for additional opportunities.

The whole business of looking for automation potential is an ongoing cycle. To really unlock the potential that is out there, you need to be continually collecting information that can be used to identify opportunities for automation — even when you're in the midst of acting on opportunities you have already discovered.

TIP

Succeeding in this cycle of discovery is why your RPA initiative needs capabilities such as those offered by the Automation Finder technology from NICE. It's a mix of desktop analytics and machine learning capabilities, and its purpose in life is to automatically identify processes with potential for automation (and then, of course, create those automations).

Automation Finder is, in itself, an example of how opportunities for improvement continually present themselves and evolve. Its initial capabilities revolve around the tricky business of monitoring desktop activities, analyzing them and looking for both bottlenecks and best practices, and then flagging the opportunities that have the best potential to succeed and offer the most gratifying payoff. Automation Finder calculates potential payoff and prioritizes projects by considering how long a process takes, how often it's executed every day, how many repetitive tasks it includes, and how many employees regularly perform the process.

As Automation Finder evolves, it will also automatically create solutions for the opportunities it has automatically detected.

Check Figure 6-3 to see how the process can work at a high level.

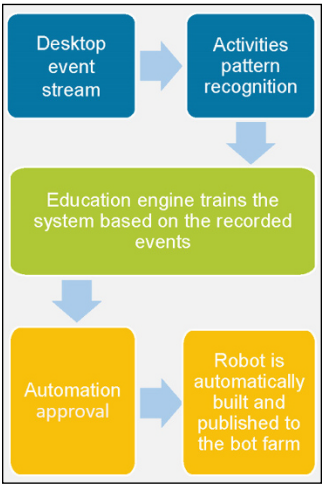
Desktop event stream
Activities pattern recognition
Education engine trains the system based on the recorded events
Automation approval
Robot is automatically built and published to the bot farm

FIGURE 6-3: The Automation Finder process.

SEARCHING FOR AUTOMATION POTENTIAL

Want to know how the process of uncovering automation is, in itself, automated? The task of identifying opportunities involves a sophisticated blend of desktop data collection, with data then plugged into cognitive algorithms, generating results that are then reported out through an automation portal.

The data collection takes into account both the application context and the page context of the activity it's watching. It keeps tabs on keyboard and mouse activity, collects screen shots, and maps out the user journey.

All of that is plugged into cognitive algorithms. Data is aggregated and a data model developed. The results that Automation Finder generates include statistics for each user and business unit, a user journey view, and recommended flows.

Handling Exceptions

From the start of this book, RPA has been established as the ability to take rules-based processes and create ways for the machine rather than the human to do the work. Handling the inevitable exceptions to those rules is one of the challenges of desktop process automation.

REMEMBER

To understand how this works, it helps to establish more specifics about the exceptions that an automation might encounter. First of all, there are business exceptions, including these examples:

- Invalid information, such as a faulty email address or a date that's presented in the wrong format
- Missing information, such as an email address, a customer identifier, or an address
- Missing business logic, which means flows that deviate from what's considered normal for the process
- Other issues with data integrity or consistency

Beyond these business-focused issues, an automation can run into technical exceptions, including these examples (the first two involve an element of human error interfering with a desktop automation):

- Unexpected user input on the keyboard or through the mouse
- A human attendant who doesn't respond to a pop-up
- "Old" screens that are left open when they should have been closed
- Slow response times on the network or Internet, or sluggish automated applications
- Connectivity failures related to application updates
- New confirmation pop-ups introduced in an application that weren't there before, even if they are a simple "OK" or "yes/no"

It's certainly not an insurmountable challenge. Attended automation is the initial solution — let the robot do its thing as much as possible, and when it runs into an exception that doesn't fit the plan, it presents the exception to the attendant for handling, fixing, or decision making. It's a perfectly fine approach, but it's still not the pot of gold at the end of the rainbow. Cognitive automation begins to create ways for handling exceptions without the need for human intervention with the help of machine learning.

The Reading Robot

RPA becomes more and more powerful as the technology gains skills in handling situations that don't conform to rules and regularity. It's one thing to handle words and other data that are nicely entered into forms and fields. What if your robot could read, understand, and deal with free text?

REMEMBER

Yes, there is such a thing as a reading robot. With technologies like text analytics and natural language processing, the robot has the ability to understand free text and really add value to the automation process by not only extracting content from free text but also grasping an understanding of the intent and the sentiment of the person who created that free text.

With the increasing amount of interactions happening via free text forms, emails, chats, letters, and text messages, the reading robot is a critical component for identifying and extracting the relevant information out of the free text and turning it into structured data, which the RPA bot can utilize in the automated flow.

Why Do You Need Cognitive Automation?

There are so many ways that AI and cognitive automation can set your organization apart. Here are just a few thoughts to consider.

Omni-channel communications

You're interacting with customers in many different ways, more and more of which are automated in one way or another. You may already be using such self-service channels as chat, interactive IVR, apps, messaging, and that kind of thing. Such technologies allow communication with customers without the need for a live agent, but they don't really get anything else done — until you integrate them with RPA.

With RPA integration, these self-service channels can provide an automation with direction regarding what action to take. It can understand intent, analyze unstructured data, predict behavior, and execute a request in the backend. Cognitive automation helps those self-serve channels work better alongside traditional and assisted channels. And, the more and more you deal with unstructured data, the better off you are when you find a way to automatically make sense of it.

Cognitive automation adds power across the organization, in fact. Take accounts payable as an example. Cognitive automation turbocharges OCR technology and machine learning capabilities and powers through the handling of invoices that used to take a long time to deal with manually. Machine learning helps the robot become more accurate and learn from exceptions and mistakes.

Analytics and learning

AI and cognitive automation help you turn data into actionable insights. Your automations can learn, based on the outcome of decisions. They can watch the overall customer journey and weave themselves more effectively into it. They also watch your agents

and back office operations, which can improve the customer journey as well, and also increase your organization's efficiency.

The right implementation will bring in much of this technology itself. But it will also allow you to tap into other technologies as needed from across the ecosystem.

Actions speak loudly

REMEMBER

RPA already gives you the ability to better achieve your business objectives through automation. Cognitive automation just makes that capability all the more powerful and all the more automatic.

Adding AI and cognitive automation to RPA allows the organization to automate a lot more of its processes. It will not be limited to those structured processes, but rather will be able to expand the boundaries of automation across the more dynamic, free-form, decision-driven processes.

With robots making more cognitive decisions, your automations are able to take the right actions at the right times. And they're able to do so more independently, without the need to consult human attendants for exception handling.

IN THIS CHAPTER

- Riding the automation wave
- Preparing for the financial impact
- Expecting changes in business processes
- Keeping up with customer expectations
- Getting ready for the talent upheaval
- Making the bosses happy

Chapter 7
Ten Realities to Consider about RPA

You don't need a crystal ball of your own to make predictions about the future and the potential impact of robotic process automation (RPA). There are quite a few things that are easy to predict and anticipate.

If you've made it to the end of this book, you no doubt want to be ready. This chapter shares observations about what to expect from the coming explosion in RPA and how it will affect your operation.

Automation Is a Wave . . . Better Catch It

If you're sitting on the sidelines wondering whether the concepts of RPA are really going to take off, better not sit idle for long or your competitors may leave you in the dust. The movement toward automation is anything but hype. It's making a big splash in numerous industries, such as financial services, insurance, telecommunications, health care, business process outsourcing, and many others.

If you've read all the blogs and webinars and conferences on the topic, that's not hype. It's evidence of something major that's only starting to gather massive strength.

The Financial Impact Can Be Impressive

New technology is often dazzling, but a lot of technology investments take a while to have positive bottom-line impact. Automation, on the other hand, can be incredibly cost-effective rather quickly. While some expenditures will make you wait months or years before the return on investment (ROI) shows up, with RPA, you'll begin seeing ROI in weeks.

It's almost certainly going to change your labor equation — but that doesn't necessarily mean you'll be slashing full-time equivalents (FTEs). Your human workforce will be freed from many routine, mundane tasks for which they're overqualified. That leaves them bandwidth to tackle higher-value work.

Meanwhile, work will be getting done more quickly, which creates capacity for more work to get done. Higher productivity can reduce expenses as well as create room for more rapid growth. From a financial perspective, that's all good.

The Cost of Errors Will Drop

Your human employees are only human, after all. They're not perfect. They make mistakes. And mistakes can be costly — not always stunningly big costs per error, but a lot of little costs that add up. First of all, errors need to be fixed, which takes time that could be better spent doing something else if not for fixing the error. That time is money.

Errors also are costly to customer satisfaction and, potentially, to your organization's reputation. Anything you can do to reduce errors is going to be a good thing. Robots can reduce errors.

REMEMBER

What about robots? Can they make errors? Yes, but not the same kinds that humans make. They won't forget the next step in the process or make a mistake in typing, for example. They might get tripped up by an exception or an unresponsive application, but exception handling helps minimize any negative impact.

Business Practices Will Change

What could your business do if key processes could be accomplished much more quickly, or more cost-effectively, or if whole new tasks could be accomplished? RPA promises to change the face of some businesses, well beyond simply altering the profit equation. Some can change the way they approach customers. Some can crunch big data in ways they couldn't before. Growth prospects are promising.

Consider a bank that makes mortgage loans through a complicated, multistep process. There's identity verification to accomplish, there are credit checks to conduct, there's a whole bunch of information to gather from the customer. It takes bankers a lot of time to do the work, and it requires them to navigate multiple systems and input data time and again.

Now imagine all of that is streamlined into a robotic process. The business is now able to process more loans, so there's a lot of capacity for growth. And because it can promise customers a much faster process, it has a marketing advantage that can make that growth happen.

Customers Will Notice and Want More

We're living in an age of instant gratification. Customers, especially younger ones, expect things to happen quickly, if not instantly. They get information from their phones almost immediately, they make rapid decisions and purchases, and their patience is waning.

The growth in robotic process automation is one way to address the needs of such demanding customers, but as their needs are met, they're likely to become that much more demanding. They'll want even faster response times and more sophisticated self-service options, and they'll have even less tolerance for such annoyances as repeating information during customer-service phone calls.

Automated processes help customer service representatives (CSRs) devote their full attention to today's demanding customers. Interactions become more fruitful, and customer satisfaction

improves. Robotic processes also help agents boost their cross-selling capabilities, as analytics and big data connections give them the info they need to close more deals.

With increases in artificial intelligence and automation sophistication, businesses will find new ways to meet customer needs, even before the customer knows about them. Machine learning, for example, can begin to notice certain patterns in a customer's account activity that suggest a problem. The robot can alert an employee, who can then contact the customer proactively and head off the problem.

REMEMBER

Although the customer may be king, improving customer service is only the beginning for RPA. Expect improvements across the organization, from back office to shared services departments, from accounts receivable to IT. Yes, customers will be happy, but so will employees, and when efficiency improvements start to show up on the bottom line, the CFO will be smiling, too.

Automation Is an Antidote for Boredom

What kinds of things drive you up a wall? Listening to the same song over and over again, or seeing the same commercial on TV at every commercial break? Hearing your neighbor's leaf blower run practically all evening, every evening? Having to repeat your address three times during a customer-service call?

Imagine an HR recruitment manager having to copy and paste 50 fields of data from a new hire contract into the HR systems. Imagine an IT professional having to copy and paste that new hire's details into ten different IT systems. RPA can ease sources of employee pain and boredom, greatly improving the employee experience. It can result in reduced turnover, and by freeing up employees to do higher-end work, it can help them advance.

Digital Transformation Is within Reach

With the combination of attended, unattended, and cognitive automation capabilities, the enterprise dream of achieving a complete digital transformation seems doable. You have unattended

for processes that can be automated end-to-end. Attended automation (which we also referred to as Desktop Automation) covers you for all those processes that require human intervention (between us — that's most of the existing processes) and can be used to not only automate, but also to optimize the way processes are carried out by people. And with additional cognitive technologies, any process is basically automatable — no matter how unstructured or decision prone it may be.

As companies are looking to transform service operations and make them less manual and more digital, they need to embrace these multiple solutions and not settle for less.

Reduce Your Staffing Headaches

Ask your human resources leadership what an easy day on the job is like, and you'll likely hear laughter in response. There's nothing easy about staffing, especially in parts of your organization where the demand is uneven, activity levels are sometimes unpredictable, and turnover is high.

Need to ramp up quickly? Do you really have workers you can bring in on a moment's notice? Not likely. And you can't just hire and train more workers overnight. On the flipside, if volume plummets, you can send a bunch of people home, but don't count on doing that very often or you'll lose valuable workers.

Robots, on the other hand, can be scaled up and down comparatively easily. They can be deployed quickly and much more cost-effectively, and they won't complain about being sent home early. It's a lot easier to have the right level of staff at the right time.

The Talent Picture Will Change

There's no way to sugarcoat the potential bad news for some of the humans in the workforce. Automation of routine tasks is going to have a big impact on certain jobs. There will, quite simply, be fewer entry-level data-entry jobs as robots step into the field. There might be negative impacts on financial planners, too, and one study predicted as many as two in five jobs in the legal sector could be automated within a decade.

But as some professions are negatively impacted, others will grow significantly. A bunch of job titles that are less familiar now could end up being careers of the future (and some already are very much in demand now). Such jobs as automation specialist are on the rise, and automation developer, automation solution engineer, automation sales consultant, automation business analyst, and vice president of automation. Check the job boards, and you'll already see a lot of jobs with "automation" in the titles.

Your Leaders Will Be Happy

If you can resolve staffing headaches, make existing employees happier, create more satisfied customers, increase efficiency, lower costs, create capacity for growth, build demand, and reduce errors . . . how could you resist? Needless to say, your organization's leadership has probably heard the buzz, so if they haven't asked about the possibilities, they probably will soon.

So, be ready to ask the questions that will determine whether RPA is ideal for your operations, and where it will work best. Which use cases make sense? Will RPA increase employee satisfaction and customer satisfaction? Will it help your team hit service-level agreements? Will it increase compliance? The more you think about it in advance, the more ready you'll be when the call from the executive office arrives.

Venture into the world of RPA

Get background on what RPA can do for you and your organization, how it works, and the different kinds of robotic solutions for your automation needs. Determine the best opportunities for automation and how to approach them, and open the right doors to seek capabilities you may never thought possible.

Inside...

- What is robotic process automation?
- Automate processes
- Start your RPA journey
- Discover automation best practices
- Set up a center of excellence
- Integrate with cognitive automation
- Reasons to consider RPA

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